No. 8400149

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Asgrow Seed Company

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF eighteen YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

SOYBEAN

'A3420'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington this 26th day of July in the year of our Lord one thousand nine hundred and eighty-five.

Attest:

Kenneth R. Evans
Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

John R. Block
Secretary of Agriculture

APPROVAL EXPIRES 4-30-85

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
WAREHOUSE & SEED DIVISION

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

FORM APPROVED: OMB NO. 0581-0055

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S)
Asgrow Seed Company

2. TEMPORARY DESIGNATION

3. VARIETY NAME
A3420

4. ADDRESS *(Street and No. or R.F.D. No., City, State, and Zip Code)*
9620-190-25 (Gull Road)
Kalamazoo, MI 49001

5. PHONE *(Include area code)*
(616) 385-6605

FOR OFFICIAL USE ONLY
PVPO NUMBER
8400149

6. GENUS AND SPECIES NAME
Glycine Max

7. FAMILY NAME *(Botanical)*
Leguminosa

FILING
DATE
8/29/84
TIME
8:30 [X] A.M. [ ] P.M.

8. KIND NAME
Soybean

9. DATE OF DETERMINATION
October 1979

FEES RECEIVED
AMOUNT FOR FILING
$ 1,800
DATE
8/29/84
AMOUNT FOR CERTIFICATE
$ 200.00
DATE
7/9/85

10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION *(Corporation, partnership, association, etc.)*
Corporation

11. IF INCORPORATED, GIVE STATE OF INCORPORATION
Delaware

12. DATE OF INCORPORATION
March 22, 1968

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS
Mr. John A. Batcha
Asgrow Seed Company
9620-190-25
Kalamazoo, MI 49001

(616) 385-6605
PHONE *(Include area code)*:

14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED

a. [X] Exhibit A, Origin and Breeding History of the Variety *(See Section 52 of the Plant Variety Protection Act.)*

b. [X] Exhibit B, Novelty Statement

c. [X] Exhibit C, Objective Description of the Variety *(Request form from Plant Variety Protection Office.)*

d. [X] Exhibit D, Additional Description of the Variety

15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? *(See Section 83(a) of the Plant Variety Protection Act.)* [ ] Yes *(If "Yes," answer items 16 and 17 below)* [X] No

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
[ ] Yes [ ] No

17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?
[ ] Foundation [ ] Registered [ ] Certified

18. DID THE APPLICANT(S) FILE FOR PROTECTION OF THE VARIETY IN THE U.S.?
[ ] Yes *(If "Yes," give date)*
[X] No

19. HAS THE VARIETY BEEN OFFERED FOR SALE OR MARKETED IN THE U.S. OR OTHER COUNTRIES?
[ ] Yes *(If "Yes," give names of countries and dates)*
[X] No

20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT
John A. Batcha Manager, administrative Services

DATE
August 24, 1984

SIGNATURE OF APPLICANT

DATE

FORM WA-470 (3-84) (Formerly LMGS-470 (8-83) which is obsolete.)

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EXHIBIT A

Origin and Breeding History of A3420

1977	Original cross (B77027) made at Oxford, Indiana PARENTS: Union * A3127
1977-78 (fall)	7 F1 plants grown at Delray Beach, Florida under lighted conditions
1978 (spring)	F2 bulk population grown at Delray Beach, Florida; single pods picked from each plant
1978 (summer)	F3 bulk population grown at Oxford, Indiana; single pods picked from each plant
1978-79 (fall)	F4 bulk population grown at Delray Beach, Florida; single plants threshed from bulk population B77027
1979 (summer)	F5 plant rows grown at Oxford, Indiana. Row B79-7931 was selected and bulk harvested
1980	B79-7931 (later A3420) was grown in a Preliminary test, P314 (code 6) at Oxford, Indiana and at Ames, Iowa.
1981	B79-7931 was grown in an advanced Strain test S301 (as code 20) at seven locations. On the basis of these tests, B79-7971 was designated X3420.
1982	X3420 was grown in an advanced Variety tests, V301 (code 6) at 9 locations. On the basis of these tests X3420 was advanced to XP3420. A small area was rogued extensively to produce 202 pounds of pure seed. Sixty purification rows and 60+ single plants were harvested to commence a replicated progeny row maintenance system.
1983	XP3420 was grown at 12 locations in advanced test V301 and 11 locations in test V304. A maintenance test (replicated test) was grown at Stonington, Illinois to produce breeder seed.

A3420 is uniform and stable within commercially acceptable limits based on trial observations since its development in 1979. As with other soybeans, variants or offtypes can occur for almost any characteristic during the course of repeated sexual multiplication.

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EXHIBIT B

Novelty Statement Concering A3420 Soybean

To our knowledge the soybean varieties that A3420 most resemble are A3127 and Williams or Williams 79.

Characteristics which differentiate these varieties include but are not necessarily restricted to the following:

Flower Color: A3420 and Williams (79) have white flowers, A3127 has purple flowers.

Phytophthora: A3127 or Williams have no major genes for resistance to Phytophthora
A3420 has Rps_1 which confers resistance to Race 1 of Phytophthora Root Rot but not Race 3.
Williams 79 has the gene Rps_1^c which confers resistance to Races 1 and 3 of Phytophthora.

Maturity: A3420 is 2 days later than A3127 and 3 days earlier than Williams 79. Supporting data is given in Exhibit D.

mga

Asgrow Seed Company
PVP Application - Soybean A3420
August 24, 1948

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, MEAT, GRAIN & SEED DIVISION
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MARYLAND 20705

EXHIBIT C
(Soybean)

OBJECTIVE DESCRIPTION OF VARIETY
SOYBEAN (Glycine max L.*)*

NAME OF APPLICANT(S)	TEMPORARY DESIGNATION	VARIETY NAME
Asgrow Seed Company	XP3420	A3420

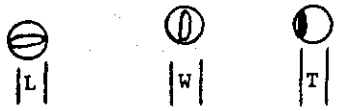
ADDRESS *(Street and No., or R.F.D. No., City, State, and Zip Code)*
9620-190-25 Gull Road
Kalamazoo, MI 49001

FOR OFFICIAL USE ONLY
PVPO NUMBER
8400149

Choose the appropriate response which characterizes the variety in the features described below. When the number of significant digits in your answer is fewer than the number of boxes provided, place a zero in the first box when number is 9 or less (e.g., [0][9]). Starred characters ★ are considered fundamental to an adequate soybean variety description. Other characters should be described when information is available.

1. SEED SHAPE:

[X] 2 RJS 1/15/85



1 = Spherical (L/W, L/T, and T/W ratios = < 1.2)
2 = Spherical Flattened (L/W ratio > 1.2; L/T ratio = < 1.2)
3 = Elongate (L/T ratio > 1.2; T/W = < 1.2)
4 = Elongate Flattened (L/T ratio > 1.2; T/W > 1.2)

★ **2. SEED COAT COLOR: (Mature Seed)**

[1] 1 = Yellow 2 = Green 3 = Brown 4 = Black 5 = Other *(Specify)* _____

3. SEED COAT LUSTER: (Mature Hand Shelled Seed)

[X] 2 RJS
1 = Dull ('Corsoy 79'; 'Braxton') 2 = Shiny ('Nebsoy'; 'Gasoy 17')

★ **4. SEED SIZE: (Mature Seed)**

[1][6] Grams per 100 seeds

★ **5. HILUM COLOR: (Mature Seed)**

[6] 1 = Buff 2 = Yellow 3 = Brown 4 = Gray 5 = Imperfect Black 6 = Black 7 = Other *(Specify)* _____

★ **6. COTYLEDON COLOR: (Mature Seed)**

[1] 1 = Yellow 2 = Green

★ **7. SEED PROTEIN PEROXIDASE ACTIVITY:**

[2] 1 = Low 2 = High

★ **8. SEED PROTEIN ELECTROPHORETIC BAND:**

[2] 1 = Type A ($SP1^a$) 2 = Type B ($SP1^b$)

★ **9. HYPOCOTYL COLOR:**

[2] 1 = Green only ('Evans'; 'Davis') 2 = Green with bronze band below cotyledons ('Woodworth'; 'Tracy')
3 = Light Purple below cotyledons ('Beeson'; 'Pickett 71')
4 = Dark Purple extending to unifoliate leaves ('Hodgson'; 'Coker Hampton 266A')

★ **10. LEAFLET SHAPE:**

[3] 1 = Lanceolate 2 = Oval 3 = Ovate 4 = Other *(Specify)* _____

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11. LEAFLET SIZE:

[1] 1 = Small ('Amsoy 71'; 'A5312') 2 = Medium ('Corsoy 79'; 'Gasoy 17')
3 = Large ('Crawford'; 'Tracy')

12. LEAF COLOR:

[2] 1 = Light Green ('Weber'; 'York') 2 = Medium Green ('Corsoy 79'; 'Braxton')
3 = Dark Green ('Gnome'; 'Tracy')

★ **13. FLOWER COLOR:**

[1] 1 = White 2 = Purple 3 = White with purple throat

★ **14. POD COLOR:**

[1] 1 = Tan 2 = Brown 3 = Black

★ **15. PLANT PUBESCENCE COLOR:**

[2] 1 = Gray 2 = Brown (Tawny)

16. PLANT TYPES:

[2] 1 = Slender ('Essex'; 'Amsoy 71') 2 = Intermediate ('Amcor'; 'Braxton')
3 = Bushy ('Gnome'; 'Govan')

★ **17. PLANT HABIT:**

[2] 1 = Determinate ('Gnome'; 'Braxton') 2 = Semi-Determinate ('Will')
3 = Indeterminate ('Nebsoy'; 'Improved Pelican')

★ **18. MATURITY GROUP:**

[0][6] 1 = 000 2 = 00 3 = 0 4 = I 5 = II 6 = III 7 = IV 8 = V
9 = VI 10 = VII 11 = VIII 12 = IX 13 = X

★ **19. DISEASE REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)**

BACTERIAL DISEASES:

★ [0] Bacterial Pustule *(Xanthomonas phaseoli* var. *sojensis)*

★ [2] Bacterial Blight *(Pseudomonas glycinea)*

★ [0] Wildfire *(Pseudomonas tabaci)*

FUNGAL DISEASES:

★ [2] Brown Spot *(Septoria glycines)*

Frogeye Leaf Spot *(Cercospora sojina)*

★ [0] Race 1 [ ] Race 2 [ ] Race 3 [ ] Race 4 [ ] Race 5 [ ] Other *(Specify)* _____

[0] Target Spot *(Corynespora cassiicola)*

[1] Downy Mildew *(Peronospora trifoliorum* var. *manshurica)*

[1] Powdery Mildew *(Microsphaera diffusa)*

★ [0] Brown Stem Rot *(Cephalosporium gregatum)*

[0] Stem Canker *(Diaporthe phaseolorum* var. *caulivora)*

19. DISEASE REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant) (Continued)

FUNGAL DISEASES: (Continued)

★ [0] Pod and Stem Blight *(Diaporthe phaseolorum var; sojae)*

[2] Purple Seed Stain *(Cercospora kikuchii)*

[0] Rhizoctonia Root Rot *(Rhizoctonia solani)*

Phytophthora Rot *(Phytophthora megasperma var. sojae)*

★ [2] Race 1 [0] Race 2 [1] Race 3 [0] Race 4 [0] Race 5 [0] Race 6 [0] Race 7

[0] Race 8 [0] Race 9 [ ] Other *(Specify)* _____

VIRAL DISEASES:

[0] Bud Blight (Tobacco Ringspot Virus)

[0] Yellow Mosaic (Bean Yellow Mosaic Virus)

★ [0] Cowpea Mosaic (Cowpea Chlorotic Virus)

[0] Pod Mottle (Bean Pod Mottle Virus)

★ [2] Seed Mottle (Soybean Mosaic Virus)

NEMATODE DISEASES:

Soybean Cyst Nematode *(Heterodera glycines)*

★ [1] Race 1 [0] Race 2 [1] Race 3 [1] Race 4 [0] Other *(Specify)* _____

[0] Lance Nematode *(Hoplolaimus Colombus)*

★ [0] Southern Root Knot Nematode *(Meloidogyne incognita)*

★ [0] Northern Root Knot Nematode *(Meloidogyne Hapla)*

[0] Peanut Root Knot Nematode *(Meloidogyne arenaria)*

[0] Reniform Nematode *(Rotylenchulus reniformis)*

[ ] OTHER DISEASE NOT ON FORM *(Specify)*: _____

20. PHYSIOLOGICAL RESPONSES: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

★ [0] Iron Chlorosis on Calcareous Soil

[ ] Other *(Specify)* _____

21. INSECT REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

[0] Mexican Bean Beetle *(Epilachna varivestis)*

[0] Potato Leaf Hopper *(Empoasca fabae)*

[0] Other *(Specify)* _____

22. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED.

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant Shape	Williams	Seed Coat Luster	A3127
Leaf Shape	A3127	Seed Size	A3127
Leaf Color	A3127	Seed Shape	A3127
Leaf Size	Amsoy	Seedling Pigmentation	Williams

23. GIVE DATA FOR SUBMITTED AND SIMILAR STANDARD VARIETY: Paired Comparison Data

VARIETY	NO. OF DAYS MATURITY	PLANT LODGING SCORE	CM PLANT HEIGHT	LEAFLET SIZE		SEED CONTENT		SEED SIZE G/100 SEEDS	NO. SEEDS/ POD
				CM Width	CM Length	% Protein	% Oil		
Submitted A3420	132	2.5	94	8	12	39.4	21.0	16.2	
Name of Similar Variety Williams 79	135	2.8	102	10	15	40.3	21.4	19.6	

PUBLICATIONS USEFUL AS REFERENCE AIDS FOR COMPLETING THIS FORM:

1. Caldwell, B.E., ed. 1973. Soybeans: Improvement, Production, and Uses. Amer. Soc. Agron. Monograph No. 16.
2. Buttery, B.R. and R.I. Buzzell. 1968. Peroxidase activity in seeds of soybean varieties. Crop Sci., 8: 722-725.
3. Hymowitz, T. 1973. Electrophoretic analysis of SBTI-A_2 in the USDA soybean germplasm collection. Crop Sci., 13: 420-421.
4. Payne, R.C. and L.F. Morris. 1976. Differentiation of soybean cultivars by seedling pigmentation patterns. J. Seed Technol. 1: 1-19.

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EXHIBIT D

Additional Description of the Variety

Maturity - Days from September 1

	$\bar{x}$	Ames Iowa	Grinnell Iowa	Peoria Illinois	Oxford Indiana	Shelby Nebraska	Stonington Illinois
A3420	25	30.2	26.7	22.7	23.2	28.0	19.0
A3127	23	30.5	25.5	19.0	20.7	27.4	17.5
Williams 79	28	34.0	20.0	25.2	26.2	32.0	22.5
# reps		4	4	4	4	4	4
CV		5.0	4.8	5.4	6.1	2.9	4.9
LSD		2.3	1.9	1.7	2.0	1.2	1.4